

General

Title

Diagnostic imaging: percentage of final reports for CT or MRI studies of the chest or neck or ultrasound of the neck for patients aged 18 years and older with no known thyroid disease with a thyroid nodule less than 1.0 cm noted incidentally with follow-up imaging recommended.

Source(s)

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance Improvement® (PCPIA®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of final reports for computed tomography (CT) or magnetic resonance imaging (MRI) studies of the chest or neck or ultrasound of the neck for patients aged 18 years and older with no known thyroid disease with a thyroid nodule less than 1.0 cm noted incidentally with follow-up imaging recommended.

Rationale

Thyroid nodules are common, with estimates of prevalence as high as 50% (Mortensen, Woolner, & Bennet, 1955). Desser and Kamaya (2008) found that the majority of incidentally noted thyroid nodules were benign with approximately 5% being malignant. Due to the common nature of small thyroid nodules combined with the low malignancy rate, additional follow-up is not recommended (American Thyroid

Association [ATA] Guidelines Taskforce on Thyroid Nodules et al., 2009).

The following evidence statements are quoted verbatim from the referenced clinical guidelines and other references:

Nonpalpable nodules detected on ultrasound (US) or other anatomic imaging studies are termed incidentally discovered nodules or "incidentalomas." Nonpalpable nodules have the same risk of malignancy as palpable nodules with the same size. Generally, only nodules greater than 1 cm should be evaluated, since they have a greater potential to be clinically significant cancers (ATA Guidelines Taskforce on Thyroid Nodules et al., 2009).

In patients less than 35 years with an incidental thyroid nodule (ITN) detected on computed tomography (CT), magnetic resonance imaging (MRI), or extrathyroidal ultrasound, the Committee recommends further evaluation with dedicated thyroid ultrasound if the nodule is greater than or equal to 1 cm and has no suspicious imaging features, and if the patient has normal life expectancy.

In patients greater than or equal to 35 years with an ITN detected on CT, MRI, or extrathyroidal ultrasound, the Committee recommends further evaluation with dedicated thyroid ultrasound if the nodule is greater than or equal to 1.5 cm and has no suspicious imaging features, and if the patient has normal life expectancy (Hoang et al., 2014).

Evidence for Rationale

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance Improvement® (PCPIA®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

American Thyroid Association (ATA) Guidelines Taskforce on Thyroid Nodules, Cooper DS, Doherty GM, Haugen BR, Kloos RT, Lee SL, Mandel SJ, Mazzaferri EL, McIver B, Pacini F, Schlumberger M, Sherman SI, Steward DL, Tuttle RM. Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer. *Thyroid*. 2009 Nov;19(11):1167-214. [434 references] [PubMed](#)

Desser TS, Kamaya A. Ultrasound of thyroid nodules. *Neuroimaging Clin N Am*. 2008 Aug;18(3):463-78, vii. [PubMed](#)

Hoang JK, Langer JE, Middleton WD, Wu CC, Hammers LW, Cronan JJ, Tessler FN, Grant EG, Berland LL. Managing incidental thyroid nodules detected on imaging: white paper of the ACR Incidental Thyroid Findings Committee. *J Am Coll Radiol*. 2015 Feb;12(2):143-50. [PubMed](#)

Mortensen JD, Woolner LB, Bennett WA. Gross and microscopic findings in clinically normal thyroid glands. *J Clin Endocrinol Metab*. 1955 Oct;15(10):1270-80. [PubMed](#)

Primary Health Components

Incidental thyroid nodules (ITNs); computed tomography (CT); magnetic resonance imaging (MRI); chest and neck imaging; neck ultrasound; follow-up imaging

Denominator Description

All final reports for computed tomography (CT) or magnetic resonance imaging (MRI) studies of the chest or neck or ultrasound of the neck for patients aged 18 and older with a thyroid nodule less than 1.0 cm noted (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Final reports for computed tomography (CT) or magnetic resonance imaging (MRI) of the chest or neck or ultrasound of the neck with follow-up imaging recommended

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Importance of Topic

As imaging technology continues to advance, the United States healthcare system has seen an increase in both the type and frequency of imaging studies being performed. The increase in utilization of imaging studies is accompanied by a corresponding increase in cost and exposure to radiation for both patients and healthcare professionals.

From 1980 to 2006, the number of radiologic procedures performed in the United States showed a ten-fold increase while the annual per-capita effective dose from radiologic and nuclear medicine procedures increased by 600% (Mettler et al., 2009).

From 1996 to 2010, the number of computerized tomographic (CT) examinations tripled, while the number of ultrasounds nearly doubled (Smith-Bindman et al., 2012).

From 1996 to 2010, advanced diagnostic imaging (i.e., CT, magnetic resonance imaging [MRI], nuclear medicine, and ultrasound) accounted for approximately 35% of all imaging studies (Smith-Bindman et al., 2012).

From 1980 to 2006, the proportion of radiation exposure that is attributable to medical sources increased from 17% to 53% (Mettler et al., 2009).

In 2006, while CT scans only accounted for approximately 17% of all radiologic procedures performed in the United States, they accounted for over 65% of the total effective radiation dose from radiologic procedures (Mettler et al., 2009).

In 2006, the estimated per-capita effective radiation dose for radiologic procedures in the United States was nearly 20% higher than the average for other well-developed countries (Mettler et al., 2009).

Diagnostic imaging was prioritized as a topic area for measure development due to a high level of utilization, rising costs, and the need for measures to help promote appropriate use of imaging and improve outcomes.

Opportunity for Improvement

In their 2010 review of the literature, Ahmed et al. (2010) concluded that there is significant inconsistency in how incidental thyroid nodules are reported and followed up by radiologists. Given the common nature of thyroid nodules, unnecessary follow-up of these nodules can result in excessive testing and costs for patients.

Evidence for Additional Information Supporting Need for the Measure

Ahmed S, Horton KM, Jeffrey RB, Sheth S, Fishman EK. Incidental thyroid nodules on chest CT: Review of the literature and management suggestions. *AJR Am J Roentgenol*. 2010 Nov;195(5):1066-71. [PubMed](#)

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance Improvement® (PCPI®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

Mettler FA, Bhargavan M, Faulkner K, Gilley DB, Gray JE, Ibbott GS, Lipoti JA, Mahesh M, McCrohan JL, Stabin MG, Thomadsen BR, Yoshizumi TT. Radiologic and nuclear medicine studies in the United States and worldwide: frequency, radiation dose, and comparison with other radiation sources--1950-2007. *Radiology*. 2009 Nov;253(2):520-31. [PubMed](#)

Smith-Bindman R, Miglioretti DL, Johnson E, Lee C, Feigelson HS, Flynn M, Greenlee RT, Kruger RL, Hornbrook MC, Roblin D, Solberg LI, Vanneman N, Weinmann S, Williams AE. Use of diagnostic imaging studies and associated radiation exposure for patients enrolled in large integrated health care systems, 1996-2010. *JAMA*. 2012 Jun 13;307(22):2400-9. [PubMed](#)

Extent of Measure Testing

Some of the measures in this set are being made available without any prior testing. The Physician Consortium for Performance Improvement (PCPI) recognizes the importance of testing all of its measures and encourages testing of the diagnostic imaging measurement set for feasibility and reliability by organizations or individuals positioned to do so. The *Measure Testing Protocol for PCPI Measures* was approved by the PCPI in 2010 and is available on the PCPI Web site (see Position Papers at www.physicianconsortium.org); interested parties are encouraged to review this document and to contact PCPI staff. The PCPI will welcome any opportunity to promote the initial testing of these measures and to ensure that any results available from testing are used to refine the measures before implementation.

Evidence for Extent of Measure Testing

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance Improvement® (PCPI®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Ambulatory Procedure/Imaging Center

Hospital Inpatient

Hospital Outpatient

Long-term Care Facilities - Other

Skilled Nursing Facilities/Nursing Homes

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Individual Clinicians or Public Health Professionals

Statement of Acceptable Minimum Sample Size

Does not apply to this measure

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Health and Well-being of Communities

Person- and Family-centered Care

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality

Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Diagnostic Evaluation

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

All final reports for computed tomography (CT) or magnetic resonance imaging (MRI) studies of the chest or neck or ultrasound of the neck for patients aged 18 and older with a thyroid nodule less than 1.0 cm noted.

Exclusions

Unspecified

Exceptions

Documentation of medical reason(s) that follow-up imaging is indicated (e.g., patient has multiple endocrine neoplasia, patient has cervical lymphadenopathy, other medical reason[s])

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

Final reports for computed tomography (CT) or magnetic resonance imaging (MRI) of the chest or neck or ultrasound of the neck with follow-up imaging recommended

Exclusions

Unspecified

Numerator Search Strategy

Fixed time period or point in time

Data Source

Electronic health/medical record

Imaging data

Paper medical record

Registry data

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a lower score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Measure #11: appropriate follow-up imaging for incidental thyroid nodules.

Measure Collection Name

Diagnostic Imaging Performance Measurement Set

Submitter

American College of Radiology - Medical Specialty Society

Developer

American College of Radiology - Medical Specialty Society

National Committee for Quality Assurance - Health Care Accreditation Organization

Physician Consortium for Performance Improvement® - Clinical Specialty Collaboration

Funding Source(s)

Unspecified

Composition of the Group that Developed the Measure

Diagnostic Imaging Measure Development Work Group Members

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Financial Disclosures/Other Potential Conflicts of Interest

None of the members of the Diagnostic Imaging Work Group had any disqualifying material interest under the Physician Consortium for Performance Improvement (PCPI) Conflict of Interest Policy.

Measure Initiative(s)

Physician Quality Reporting System

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Feb

Measure Maintenance

This measure is reviewed and updated every 3 years.

Date of Next Anticipated Revision

2018

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in March 2017.

Measure Availability

Source available from the [American College of Radiology \(ACR\) Web site](#) .

For more information, contact ACR at 1891 Preston White Drive, Reston, VA 20191; Phone: 703-648-8900; E-mail: info@acr.org; Web site: www.acr.org .

NQMC Status

This NQMC summary was completed by ECRI Institute on October 13, 2015. The information was verified by the measure developer on November 19, 2015.

The information was reaffirmed by the measure developer on March 3, 2017.

Copyright Statement

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Production

Source(s)

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance Improvement® (PCPIA®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

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